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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/628,552 | 07/29/2003 | Hirokazu Nunokawa | Q76699 | 4741 |

23373 7590 05/04/2006

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| EXAMINER | |
|---|---|
| KUMAR, RAKESH | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3654 | |

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/628,552 | NUNOKAWA, HIROKAZU | |
| | Examiner | Art Unit | |
| | Rakesh Kumar | 3654 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *Remarks Filed 02/15/2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2,4 and 10-12* is/are allowed.

6)☒ Claim(s) *1,3,5-9 and 13-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

**Final Rejection**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 6 and 14 rejected under 35 U.S.C. 102(b) as being anticipated by Ahne et al. (U.S. Patent No. 6,406,110).

3. Referring to claim 1 and 14. Ahne et al. discloses a mechanism to automate the adjustment of the gap spacing between the print head and the media. The method recites a controller (30) knows the initial spacing of the gap between the printhead and the platen (paragraph 7 line 21) thus indicating an initial input. The controller then receives a secondary input by a mean of a user input or through data collection (paragraph 7 line 10-13) associated with the print medium input sensors 132, 134 and 136 (Fig. 7 and 8, Col 7 lines 17-25), comparing the initial input signal to a signal obtained from secondary sensor and making the appropriate control adjustments indicates a step of changing a carry command value, as the document S is being fed and carried through the print apparatus on a bending path 36 (state of bending; Fig. 1) by a feed roller assembly 42 and 44 (paragraph 3 line 35-40) based on after the determination of the changing of the carry command value. Once the adjustments are

made based on the media properties and the predetermined control values, the document S is continued to be carried through the print head assembly and the information from the print head is recorded on medium (Col 6 line 62, Col 7 line 52).

4. Regarding claim 13. Ahne et al. discloses a printer controller (30) with an ability to access a look-up table.

5. Referring to claim 5 and 6. Ahne et al. discloses the print media sensor 134 provides a signal or a command to the printer controller 30, which represents a characteristic of the print medium itself that can be correlated to a property of the media such as the thickness or another characteristic of the media. Based on the command the gap of the printer head and the media can be adjusted as the media is carried through the apparatus.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7, 8 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Ahne et al.

8. Referring to claims 7, 8 and 9. Ahne et al. discloses a method where the print media sensor 134 provides a signal or a command to the printer controller 30, which represents a characteristic of the print medium itself that can be correlated to a specific property of the media such as the thickness or another characteristic of the media. Based on the command, the gap of the printer head and the media can be adjusted as the media is carried through the apparatus. Ahne et al. also teaches that various other sensors can be used to determine other properties of the media such as the paper size by either manually inputting the information by the user or determining through the detection process of the sensors (Col. 6 lines 62-67, Col. 7 lines 1-20).

Ahne et al. does not specifically state that an attribute of the media is a length, width or the type of material the media comprises.

It would be obvious to one of ordinary skill in the art to modify the teaching of Ahne et al. to consider that determining the paper size by sensors would encompass sensors being used to determine the individual width and length of the document. Sensor could also used to determine the physical attributes of the media such as the reflectivity, density and material type. As a result, the detection process can be automated by the detecting the media size and the media properties so that the printing mechanism can be specifically adapted to using multiple type of media sizes, weights and gloss and result in superior final print quality.

9. Regarding claim 13. Ahne et al. discloses a printer controller (30) with an ability to access a look-up table.

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Ahne and include a processor controller with the ability to access a computer-readable medium (cd, floppy, 3.5" floppy) bearing program code instructions such as a look-up table as disclosed in Ahne to perform operation because a user could easily upload new user software and print media sheet thickness.

10. Claims 3 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Ahne et al. in view of Yokoi et al. (U.S. Patent No. 5,982,400).

11. Referring to claims 3 and 15. See claim 1. Ahne et al. discloses a method to compare input signals obtained at different locations as the document S proceeds through the bending path 36 and thus making the appropriate printer gap adjustments to maintain a constant media to print head relationship as the document S is carried through to the print head assembly.

Ahne et al. does not disclose a method in specific to detect and change the input signal at the rear of the document S.

Yokoi et al. discloses a sheet feeding apparatus and an image forming system where the sensors 11, 12 are disposed on the feeding path to detect a front end and the rear end of the recording sheet. Initially, these sensors are disengaged and are actuated when the front and the rear ends are detected of the medium. The initial stage

of the sensor provides an initial signal and the detection itself provides a second detected signal, thus indicating a change in the command value that is sent to the controller (Col 8 line 38, Col 10 line 60, Figure 12,19,20) while carrying the document through the print head assembly.

It would be obvious to one of ordinary skill in the art at the time of the invention was made to configure the sensors as disclosed by Yokoi et al. to be able to detect the front and the rear ends of the medium as it proceeds through the media path and thus change the printer head gap distance as the signal are received by the controllers. As a result be able to more precise control the printer head gap distance at the front and the rear ends of the documents.

### *Allowable Subject Matter*

12. Claims 2,4 and 10-12 are allowed.

### *Response to Arguments*

13. Applicant's arguments filed 02/15/2006 have been fully considered but they are not persuasive.

14. Referring claims 1,14 and 15. The Applicant argues "there is no teaching or suggestion in Ahne of adjusting or changing a carry command value according to a bending state of a recording medium." The office relies on Figure 1 wherein the print

media is positioned in media path (36) in a bending state (see path of print media), wherein a change in the carry command value is obtained by comparing an intrinsic property of an initial value to a value obtained based on the thickness of the print media or another property specific to that print media type. For changing a carry command and driving a carry roller see claims above.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh Kumar whose telephone number is (571) 272-8314. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK
April 28, 2006

GENE O. CRAWFORD
SUPERVISORY PATENT EXAMINER